National Heart Lung and Blood Institute
People Science Health

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Breakthrough for Adult SCD

A modified blood adult stem-cell transplant regimen has effectively reversed sickle cell disease (SCD) in 9 of 10 adults who had been severely affected by the disease, according to results of a National Institutes of Health study reported in the December 10 issue of the *New England Journal of Medicine*.

SCD, the most common serious inherited blood disorder in the United States, is a problem of significant medical, psychological, social, and economic importance, particularly among the black population. It is caused by a gene mutation that results in abnormal hemoglobin, causing red blood cells to collapse into a sickle shape, become stiff and sticky, and form clumps that block blood flow. As a result, SCD patients often experience severe pain, organ damage from lack of oxygen, and stroke.

Children with severe SCD have been cured with bone marrow transplants after undergoing a regimen in which their own marrow was completely destroyed with chemotherapy. That regimen, however, has proven to be too toxic for adults, who because of years of accumulated organ damage from SCD are less able to tolerate complete marrow transplantation.

This adult trial sought to reduce toxicity by only partially replacing the bone marrow. To achieve this, investigators used a low dose of radiation to the whole body and two drugs, alemtuzumab and sirolimus, to suppress the immune system. The relatively low toxicity regimen allowed patients to become tolerant to the donor immune cells and to achieve stable mixed donor chimerism, a condition in which an individual has two genetically distinct types of cells in the blood. In most patients the donor's red blood cells completely replaced the recipient's and were sufficient to reverse SCD.

The trial was conducted at the NIH Clinical Center in Bethesda, MD, by researchers from the National Institute of Diabetes and Digestive and Kidney Diseases, the National Institute of Allergy and Infectious Diseases, and the NHLBI.

NHLBI Acting Director Announced

Dr. Susan B. Shurin was named Acting Director of the NHLBI, effective December 1, 2009. She joined the NHLBI as Deputy Director in February 2006, coming from Case Western Reserve University in Cleveland, OH.

Before joining the NHLBI, Dr. Shurin was Professor of Pediatrics and Oncology at Case Western Reserve University; Director of Pediatric Hematology-Oncology at Rainbow Babies and Children's Hospital; Director of Pediatric Oncology at the Case Comprehensive Cancer Center; and Vice President and Secretary of the Corporation at Case Western Reserve University. She received her education and medical training at Harvard University and the Johns Hopkins University School of Medicine.

Former NHLBI Director, Dr. Elizabeth G. Nabel, recently became President of Brigham and Women's Hospital and Faulkner Hospital, in Boston, MA.

Inside

NHLBI Acting Deputy Director Announced

Dr. Carl Roth was named Acting Deputy Director of the NHLBI, effective December 18, 2009. Dr. Roth has served in a number of leadership capacities at the NHLBI, including serving previously as the Acting Deputy Director of the Institute, since joining the NHLBI in 1982. He holds B.S. and M.S. degrees in Industrial Engineering from Lehigh University, a Ph.D. in Operations Research from Yale University, a J.D. from the University of Maryland School of Law, and an LL.M. in Intellectual Property Law from the George Washington University.

Science Advance from the NHLBI: Advanced Imaging May Improve Management of Coronary Artery Disease

Identification of atherosclerotic plaques that are vulnerable to rupture remains an elusive goal, due in large part to the limited resolution of existing imaging techniques. Optical coherence tomography (OCT) is a high-resolution intracoronary imaging modality that can visualize and quantify coronary plaque microstructures, including thin fibrous caps, collagen, thrombi, macrophages, and stent coverage. Despite its substantial promise in plaque imaging, OCT has limited clinical application because blood severely attenuates its signal. Obtaining a clear image requires temporarily interrupting blood flow through the vessel, which is undesirable because it can cause myocardial ischemia and vessel injury.

To address this shortcoming, an NHLBI-supported team has developed a second-generation form of OCT, called optical frequency domain imaging (OFDI), which can acquire images at much higher frame rates, enabling higher resolution and rapid 3-dimensional imaging of long coronary segments after a brief, non-occlusive saline purge. This new methodology was used successfully in 3 patients after intracoronary stent placement to identify a diverse range of microscopic findings, including thin-capped fibroatheroma, calcium, cholesterol crystals, macrophages, and bare stent struts. The investigators reported the first human experience with intracoronary OFDI and demonstrated its ease of use and potential diagnostic value. Although this was a proof-of-principle study with few patients, the results are very promising.

OFDI may become a powerful tool for studying human coronary artery disease and in personalizing its management, but first it must be evaluated in larger patient samples to determine its clinical utility in identifying vulnerable plaques in high-risk patients.

Mark Your Calendar . . .

February	American Heart Month *(www.americanheart.org/)*
5th	National Wear Red Day *(www.nhlbi.nih.gov/educational/hearttruth/)*
March 7th-13th	National Sleep Awareness Week *(www.sleepfoundation.org)*
April	National Sarcoidosis Awareness Month *(www.nationalsarcoidosisfriends.org)*
May	National Asthma and Allergy Awareness Month *(www.aafa.org)*
	National High Blood Pressure Education Month *(http://www.nhlbi.nih.gov/about/nhbpep/)*
	Tuberous Sclerosis Awareness Month *(www.tsalliance.org)*

NHLBI Research Initiatives

From time to time, the NHLBI invites investigators to submit grant applications or contract proposals for specific research programs. We are soliciting applications for the following new programs. Please visit the URL listed with each program to obtain information about important application dates and deadlines. For full descriptions of these and other current research initiatives, visit www.nhlbi.nih.gov/funding/inits/index.htm.

Functional Modeling of Pediatric Upper Airway Disorders (R01) (RFA-HL-10-017)
http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-10-017.html
Objective: Develop computational models of the upper airway in children with multiple types of congenital malformations and acquired syndromes of airway obstruction to identify control points that limit airflow.

Lung Transplantation: Planning Grants for Clinical Trials of Novel Therapies (R34) (RFA-HL-10-016)
http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-10-016.html
Objective: Propose protocols to assess promising new interventions for lung donors and recipients with the goal of improving long-term lung transplant patient outcomes.

Bioengineering Nanotechnology Initiative (STTR [R41/R42]) and (SBIR [R43/R44]) (PA-09-266 and -267)
http://grants.nih.gov/grants/guide/pa-files/PA-09-266.html
Objective: Conduct small business projects that develop and apply nanotechnology to biomedicine.

NHLBI Clinical Trial Pilot Studies (R34) (PAR-10-005)
http://grants.nih.gov/grants/guide/pa-files/PAR-10-005.html
Objective: Conduct pilot studies to obtain critical data needed to design clinical trials directed at improving the prevention and treatment of heart, lung, blood, and sleep disorders.

Bioengineering Research Grants (PA-10-009 and -010)
http://grants.nih.gov/grants/guide/pa-files/PA-10-009.html
Objective: Conduct basic design-directed or hypothesis-driven bioengineering studies in single laboratories or small groups using integrative, systems approaches.

Cellular and Molecular Mechanisms of Arterial Stiffening and Its Relationship to Development of Hypertension (R01) (RFA-HL-10-027)
http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-10-027.html
Objective: Determine the relationship between arterial stiffening and the development of hypertension with the goal of preventing hypertension and associated target organ damage.

NHLBI Centers for Cardiovascular Outcomes Research (U01) (RFA-HL-10-008 and -018)
http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-10-008.html
Objective: Improve understanding of processes involved in translating cardiovascular research findings into practice through the conduct of outcomes and comparative effectiveness research.

Obesity Policy Research: Evaluation and Measures (R01) (PA-10-027 and -028)
http://grants.nih.gov/grants/guide/pa-files/PA-10-027.html
Objective: Conduct research on community and other population-level public policy interventions that may affect diet and physical activity.

Effectiveness Research on Smoking Cessation in Hospitalized Patients (RFA-HL-10-020 and -025)
http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-10-020.html
Objective: Determine how to translate smoking cessation interventions into effective programs for implementation in routine clinical care and to assess their cost effectiveness.

Selected Topics in Transfusion Medicine (R01/R21) (PAR-10-033 and -034)
http://grants.nih.gov/grants/guide/pa-files/PAR-10-034.html
Objective: Conduct research on selected topics in transfusion medicine, such as alloimmunization, infectious disease complications, microchimerism, development of effective animal models, and behavioral studies related to blood donor recruitment.

Reducing Cardiovascular Disease Risk Through Treatment of Obstructive Sleep Apnea (U34) (RFA-HL-10-023)
http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-10-023.html
Objective: Provide preliminary information for the design of a Phase III clinical trial to test whether positive airway pressure treatment reduces cardiovascular events.

Critical Illness and Injury in Aging (R01) (PA-10-042, -043, and -044)
http://grants.nih.gov/grants/guide/pa-files/PA-10-042.html
Objective: Study mechanisms and management of critical illness and injury, including trauma and neurotrauma, in aging.

Dissemination and Implementation Research in Health (R01) (PAR-10-038)
http://grants.nih.gov/grants/guide/pa-files/PAR-10-038.html
Objective: Identify, develop, and refine methods to test models of dissemination and implementation of health behavior change interventions and evidence-based prevention.

Development of Multifunctional Drug and Gene Delivery Systems (R01) (PAR-10-048)
http://grants.nih.gov/grants/guide/pa-files/PAR-10-048.html
Objective: Develop drug and gene delivery systems that can target therapies to particular cells and intracellular components.

Programs of Excellence in Glycosciences (P01) (RFA-HL-10-026)
http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-10-026.html
Objective: Enhance interdisciplinary research and training in glycosciences in order to translate emerging discoveries in glycosciences into new diagnostics and clinical applications.

Systems Biology Approach to the Mechanisms of TB Latency and Reactivation (R01) (RFA-HL-10-015 and -022)
http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-10-015.html
Objective: Investigate the mechanisms of latency and reactivation of tuberculosis in the lung using collaborative systems biology approaches based primarily on human studies.

National Heart, Lung, and Blood Advisory Council Meetings

September 1, 2009

Dr. Elizabeth Nabel, Director of the NHLBI, welcomed members to the 235th meeting of the National Heart, Lung, and Blood Advisory Council (NHLBAC). The meeting was entirely a closed session. Council members attended via video conference and telephone. The Council concurred on the award of numerous research grants to be supported with FY 2009 appropriated funds and American Recovery and Reinvestment Act (ARRA) funds.

October 20, 2009

Dr. Nabel welcomed members to the 236th meeting of the NHLBAC. She also welcomed representatives of three NHLBI Advisory Committees: Dr. C. William Balke, representing the NHLBI Institutional Training Mechanism Review Committee; Dr. Charles Czeisler, representing the Sleep Disorder Research Advisory Board; and Dr. John J. Reilly, Jr., representing the Clinical Trials Review Committee. Dr. Nabel noted that Dr. Edward Benz of the Sickle Cell Disease Advisory Committee and Dr. Anne Marie Schmidt of the National Heart, Lung, and Blood Program Project Review Committee were unable to attend.

Dr. Nabel recognized five Council members who are retiring: Dr. Victor Dzau, Dr. Helen Hobbs, Dr. Jennie Joe, Dr. Joseph Loscalzo, and Dr. S. K. Rao Musunuru.

Dr. Nabel announced that the NIH is operating under a Continuing Resolution, which means that the NHLBI must operate at its FY 2009 budget level of $3,014,552,000. She reviewed the Institute's proposed FY 2010 President's Budget, which totals $3,050,356,000, a 1.3 percent increase over the FY 2009 actual budget. Total research project grants (noncompeting and competing) are proposed at $2,051,848,000, a 0.6 percent increase over FY 2009. Dr. Nabel also reviewed the Institute's FY 2009/FY 2010 ARRA funding plan. Most of the Institute's ARRA allotment has been obligated.

Dr. Nabel updated the Council on progress in implementing recommended actions resulting from the recent NIH-led study of the NIH peer review system. Changes in 2009 include phasing out second amendments and implementing enhanced review criteria, a new scoring system, and structured critiques.

Dr. Nabel also noted that investigators submitting competing applications for the January 25, 2010, submission date (and beyond) should be aware of the restructured application forms, shorter page limits, and new instructions.

Dr. Nabel described the Institute's participation in two new global health programs: the NHLBI Centers of Excellence, a partnership between the NHLBI and UnitedHealth Group which will address non-communicable chronic cardiovascular and pulmonary diseases in developing countries and the Global Alliance for Chronic Diseases, which is the first collaboration of major international biomedical research funding agencies to address chronic noncommunicable diseases.

Dr. Toren Finkel, Chief of the Translational Medicine Branch, NHLBI Division of Intramural Research, discussed his laboratory's research in the areas of oxidant and free radical-mediated diseases, aging, and the clinical cardiovascular implications of stem cells.

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News from Capitol Hill

Health Care Reform

At the time of publication of the FYI from the NHLBI, the final details of health care reform legislation are uncertain. One area of particular interest to the NHLBI is Comparative Effectiveness Research (CER). The NHLBI has been a leader in this area for many years and has funded a number of new CER projects under the American Recovery and Reinvestment Act. The Senate version of the bill would establish a private non-profit entity to oversee CER, while the House version would establish a Council with oversight by the Department of Health and Human Services' Agency for Healthcare Research and Quality. The NIH would be a member of this Council. Both the Senate and House versions would prohibit exclusion of coverage for care delivered as part of participation in clinical trials.

Fiscal Year 2010 Funding for NHLBI

The Consolidated Appropriations Bill was signed into law by the President on December 16, 2009. It contained six appropriations bills, including funding for the NIH. The bill provides $3,096,916,000 for the NHLBI for FY 2010, reflecting an increase of $81.2 million over FY 2009 (+2.69%) and an increase of $46.5 million above the President's request.

Upcoming Events

Activity	Date/Location	More Information
Parent Heart Watch 2010 Annual National Conference	January 15 - 18, 2010 Arlington, TX	http://www.parentheartwatch.org/ActionAdvocacy/Events.aspx
National Heart, Lung, and Blood Advisory Council 237th Meeting	February 2, 2010 Bethesda, MD	http://www.nhlbi.nih.gov/meetings/nhlbac/index.htm
American Heart Association International Stroke Conference 2010	February 23 - 26, 2010 San Antonio, TX	http://strokeconference.americanheart.org/portal/strokeconference/sc/
National Sleep Foundation Sleep Health and Safety 2010 Conference	March 5 - 6, 2010 Washington, DC	http://www.sleepfoundation.org/event/sleep-health-safety-2010
National Alliance for Thrombosis and Thrombophilia National Conference on Blood Disorders in Public Health	March 9 - 11, 2010 Atlanta, GA	http://www.BloodDisordersConference.com
Daniella Maria Arturi Foundation 11th Annual Diamond Blackfan Anemia International Consensus Conference	March 13 - 15, 2010 Location To Be Announced	http://www.dmaf.org/events-fundraising/icc_meeting.html
Hermansky-Pudlak Syndrome Network, Inc. 17th annual HPS Network New York Conference	March 19 - 21, 2010 Long Island, NY	http://www.hpsnetwork.org/
American Sleep Apnea Association Sleep Apnea & Trucking Conference 2010	May 11 - 12, 2010 Baltimore, MD	http://www.satc2010.org/
Alpha-1 Association 2010 19th Annual National Education Conference	June 11 - 13, 2010 Lake Buena Vista, FL	http://www.alpha1.org/education/nateduconf.php
Children's Interstitial Lung Disease (chILD) Foundation chILD Conference 2010	June 18 - 20, 2010 Houston, TX	http://www.childfoundation.us/conference.html
Parent Project Muscular Dystrophy 2010 Annual Connect Conference	June 24 - 27, 2010 Denver, CO	http://www.parentprojectmd.org/site/PageServer?pagename=ending_attend_annual
Pulmonary Hypertension Association Conference and Scientific Sessions	June 25 - 27, 2010 Garden Grove, CA	http://www.phassociation.org/
TOPS Club, Inc. (Take Off Pounds Sensibly) International Recognition Days	July 15 - 17, 2010 Halifax, Nova Scotia, Canada	http://www.tops.org/IRD2010.aspx
Barth Syndrome Foundation 2010 International Scientific, Medical & Family Conference	July 26 - 31, 2010 Orlando, FL	http://barthsyndrome.org/english/View.asp?x=1633
Scleroderma Foundation 2010 National Conference	July 30 - August 1, 2010 Boston, MA	http://www.scleroderma.org/national_conference.htm

Constituents' Corner

Protecting Heart Patients from the Seasonal Flu

Patients with heart disease are at high risk for serious and potentially life-threatening complications from seasonal influenza. In fact, flu-related death is more common among individuals with heart disease than among people with any other chronic medical condition.

Despite recommendations from the Centers for Disease Control and Prevention, the American Heart Association, and the American College of Cardiology that the more than 12 million people in the United States with cardiovascular conditions should get vaccinated against the flu, in 2007 forty percent of adults living with heart disease did not receive a flu shot.

We all understand that living with heart disease is a constant struggle and that getting a flu vaccination may not be foremost in the minds of heart patients. As a result, many may not be aware that getting a simple flu shot can help protect them from serious complications associated with this common disease.

To address the low flu vaccination rates among heart disease patients, Mended Hearts has launched "I Heart Flu Shots," an educational campaign that helps educate people living with heart disease about the importance of getting a seasonal flu shot.

Initially launched nationwide in 2007, the I Heart Flu Shots program has now reached all Mended Hearts chapters at the local level with this vital heart health message. However, our efforts alone are not enough—we need your help in spreading the message of the importance of vaccination to the entire heart community.

By encouraging each of our heart patients to get a seasonal flu shot, we may help them avoid flu and its complications this season. Getting vaccinated is one of the easiest and most important steps that every person in the heart community can take to help ensure that their loved ones can lead healthy, productive lives, without suffering from the complications of the flu.

For more information about I Heart Flu Shots, please visit www.IHeartFluShots.com.

Submitted by Raul Fernandes
President, The Mended Hearts, Inc.

We invite you to use this space that we reserve for you to share your successes and opinions. You may submit your ideas and articles to nhlbi.listens@nih.gov or Public Interest News, Office of Science and Technology, Building 31, Room 5A07, 31 Center Drive, MSC-2482, Bethesda, MD 20892-2482.

October 2009 Advisory Council Meeting

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Dr. Nabel reviewed the Institute's established translational research programs and presented new and proposed translational approaches.

The established translational research programs discussed were the Clinical Research Networks, the Production Assistance for Cell Therapy (PACT), and the NIH Rapid Access to Intervention Development (RAID).

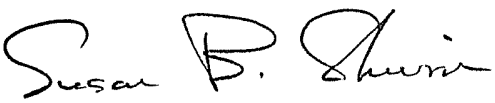
New approaches discussed by Dr. Nabel were the Bench to Bassinet Program, the Pediatric Cardiac Genomics Consortium, the Pediatric Heart Network, the Cardiovascular Development Consortium, the Cardiac Translational Research Implementation Program (C-TRIP), the Grand Opportunities Translational Research Implementation Program (GO TRIP), the Translational Program Project Grant (tPPG), the Phase II Clinical Trials of Novel Treatments for Lung Diseases, and the Science Moving TowArds Research Translation and Therapy (SMARTT) program.

Finally, proposed translational approaches discussed were the Centers for Advanced Diagnostics and Therapeutics (CADET), the NHLBI Clinical Trial Pilot Studies, and the Planning Grants for Pivotal Clinical Trials in Hemoglobinopathies. The Council members expressed their enthusiasm for the programs.

NHLBI staff presented 8 new initiatives, 11 renewals, and 4 requests by other Institutes/Centers for secondary support, all of which had been reviewed in October by the Board of External Experts. The Council was mostly supportive of the initiatives presented, but made a number of specific recommendations for consideration prior to their release.

Need More Information?

We are always interested in receiving comments and suggestions from the community. If you or your organization have questions for me or for the Institute, please contact me at shurinsb@nhlbi.nih.gov or Dr. Carl Roth at rothc@nhlbi.nih.gov.



Susan B. Shurin, M.D.
Acting Director, NHLBI

For information on specific issues, the following contacts may be helpful:

- For health-related questions, information about publications, or communications pertaining to NHLBI policies and priorities, please contact the trained information specialists of the NHLBI Information Center at 301-592-8573, or write to the Information Center at P.O. Box 30105, Bethesda, MD 20824-0105, or email inquiries to nhlbiinfo@nhlbi.nih.gov.
- For additional information regarding NHLBI events, consult the references provided or www.nhlbi.nih.gov/calendar/nhcal.htm. Most other NIH Institutes and Centers also maintain calendars on their Web sites. Links to their Web pages are at www.nih.gov/icd.